

CLAIMS

What is claimed is:

1. A method comprising:

operating a storage system that includes a communication port, the port having a mode of operation; and

dynamically switching the mode of operation of the port between a target mode and an initiator mode in response to user input from a user of the storage system.

2. A method as recited in claim 1, wherein the port is a Fibre Channel port.

3. A method as recited in claim 1, wherein the port is an iSCSI port.

4. A method as recited in claim 1, wherein operating the storage system comprises storing a variable within the storage system; and

dynamically switching the mode of operation of the port comprises:

changing a state of the variable based on user input; and

reconfiguring the port to operate in either the target mode or the initiator mode based on the state of the variable.

5. A method as recited in claim 4, wherein the state of the variable is based on whether a right to use a particular protocol is associated with the storage system.

6. A method as recited in claim 5, wherein the protocol is a Fibre Channel Protocol (FCP).

7. A method as recited in claim 1, wherein dynamically switching the mode of operation of the port comprises:

selecting one of a target driver and an initiator driver for the port based on a state of the variable.

8. A method as recited in claim 1, wherein the storage system is operable to provide a host with access to a set of mass storage devices by using the port.

9. A method as recited in claim 1, wherein the storage system is operable to provide a plurality of hosts with file-level access and block-level access to stored data.

10. A method as recited in claim 9, further comprising reconfiguring the storage system from a first network configuration to a second network configuration or vice versa;

wherein in the first network configuration, the port is configured in the target mode and the storage system is connected through the port via a switching fabric to a set of clients to provide the set of clients with block-level access to a set of mass storage devices; and

wherein in the second network configuration, the port is configured in the initiator mode.

11. A method as recited in claim 10, wherein in the second network configuration, the storage system is connected through the port to a SAN-based backup mass storage medium.

12. A method as recited in claim 10, wherein in the second network configuration the port is one of a plurality of ports used to connect the storage system to a set of mass storage devices.

13. A method of reconfiguring a unified storage system operable to provide a plurality of hosts with file-level access and block-level access to stored data, the storage system including a port, the method comprising:

dynamically switching a mode of operation of the port between a target mode and an initiator mode; and

reconfiguring the storage system from a first network configuration to a second network configuration or vice versa, wherein in the first network configuration the port is configured in the target mode and the storage system is connected through the port via a switching fabric to a set of clients to provide the set of clients with block-level access to a set of mass storage devices, and wherein in the second network configuration the port is configured in the initiator mode.

14. A method as recited in claim 13, wherein in the second network configuration, the storage system is connected through the port to a SAN-based backup mass storage medium.

15. A method as recited in claim 13, wherein in the second network configuration the port is one of a plurality of ports used to connect the storage system to a set of mass storage devices.

16. A method as recited in claim 13, wherein operating the storage system comprises storing a variable within the storage system; and

dynamically switching the mode of operation of the port comprises:

changing a state of the variable based on user input; and

reconfiguring the port to operate in either the target mode or the initiator mode based on the state of the variable.

17. A method as recited in claim 16, wherein the port is a Fibre Channel port, and the variable is indicative of whether a right to use a Fibre Channel Protocol (FCP) is associated with the storage system.

18. A method as recited in claim 16, wherein the port is an iSCSI port.

19. A method as recited in claim 13, wherein dynamically switching the mode of operation of the port comprises:

selecting one of a plurality of selectable drivers for the port based on a state of the variable.

20. A method of dynamically switching a Fibre Channel port between a target mode of operation and an initiator mode of operation, the method comprising:

operating a storage system configured to provide a host with access to a set of mass storage devices, the storage system including the Fibre Channel port;

storing a variable within the storage system;

changing a state of the variable based on user input; and

reconfiguring the Fibre Channel port to operate in either the target mode or the initiator mode based on the state of the variable.

21. A method as recited in claim 20, wherein reconfiguring the Fibre Channel port to operate in either the target mode or the initiator mode comprises:

selecting one of a target driver and an initiator driver for the Fibre Channel port based on the state of the variable.

22. A method as recited in claim 20, wherein the variable is based on whether a right to use a Fibre Channel Protocol (FCP) is associated with the storage system.

23. A method as recited in claim 22, wherein changing the state of the variable comprises changing the state of the variable based on user input affecting the right to use the FCP with the storage system.

24. A method as recited in claim 20, wherein the storage system is configured to operate as a file server.

25. A method as recited in claim 20, wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices.

26. A method as recited in claim 20, wherein the storage system is operable to provide file-level access and block-level access to stored data.

27. A method of dynamically switching a Fibre Channel port between a target mode of operation and an initiator mode of operation, the method comprising:

initializing a storage system configured to provide a host with access to a set of mass storage devices, the storage system including a Fibre Channel adapter and the Fibre Channel port;

storing within the storage system a variable for use in determining whether the Fibre Channel port is to operate in the target mode or in the initiator mode;

changing the state of the variable based on user input affecting a right to use a Fibre Channel Protocol (FCP) with the storage system;

reinitializing the storage system, including

checking the state of the licensing status variable, and

selecting one of a target driver and an initiator driver for the Fibre Channel port based on the state of the variable, the selected driver causing the Fibre Channel port to operate in a corresponding one of the target mode and the initiator mode.

28. A method as recited in claim 27, wherein the storage system is configured to operate as a file server.

29. A method as recited in claim 27, wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices.

30. A method as recited in claim 27, wherein the storage system is operable to provide file-level access and block-level access to stored data.

31. A storage system comprising:

a processor;

a Fibre Channel port;

a Fibre Channel adapter to control the Fibre Channel port;

a first memory, separate from the Fibre Channel adapter, to store a variable, the variable being modifiable in response to user input; and

a second memory storing instructions which, when executed by the processor, cause the storage system to:

- read the variable from the first memory,
- configure the Fibre Channel port to operate in either a target mode or an initiator mode based on a state of the variable, and
- provide a host with access to a set of mass storage devices by using the Fibre Channel port.

32. A storage system as recited in claim 31, wherein the variable is indicative of whether a right to use a Fibre Channel Protocol (FCP) is associated with the storage system.

33. A storage system as recited in claim 31, wherein the instructions which cause the storage system to configure the Fibre Channel port to operate in either the target mode or the initiator mode comprise instructions which cause the storage system to:

- select one of a target driver and an initiator driver for the Fibre Channel port based on the state of the variable.

34. A storage system as recited in claim 31, wherein the storage system is configured to operate as a file server.

35. A storage system as recited in claim 31, wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices.

36. A storage system as recited in claim 31, wherein the storage system is operable to provide a plurality of hosts with file-level access and block-level access to stored data.

37. A storage system comprising:

- a communication port to enable the storage system to communicate with an external device, the port having a mode of operation;

- a processor; and

- a memory storing software which, when executed by the processor, causes the storage system to perform a process comprising:

- providing a host with access to a set of mass storage devices by using the port;

- storing a variable within the storage system;

- changing a state of the variable based on user input; and

- reconfiguring the port to operate in either a target mode or an initiator mode based on the state of the variable.

38. A storage system as recited in claim 37, wherein the port is a Fibre Channel port.

39. A storage system as recited in claim 37, wherein the port is an iSCSI port.

40. A storage system as recited in claim 37, wherein reconfiguring the port to operate in either the target mode or the initiator mode comprises:

selecting one of a plurality of selectable drivers for the port based on the state of the variable.

41. A storage system as recited in claim 37, wherein the variable indicates whether a right to use a particular protocol is associated with the storage system.

42. A storage system as recited in claim 41, wherein changing the state of the variable comprises changing the state of the variable based on user input affecting the right to use the protocol with the storage system.

43. A storage system as recited in claim 37, wherein the storage system is configured to operate as a file server.

44. A storage system as recited in claim 37, wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices.

45. A storage system as recited in claim 37, wherein the storage system is configurable to operate either as a file server or to provide the host with block-level access to the set of mass storage devices.

46. A storage system comprising:

a communication port;

means for providing a host with access to a set of mass storage devices by using the communication port; and

means for dynamically switching a mode of operation of the port between a target mode and an initiator mode.